

REMARKS

Claims 2, 3, and 12 have been canceled. Claims 1, 4, 5, 9, 11, 13, 17, and 18 have been amended. Claims 1, 4 through 11, and 13 through 20 remain in the application. A marked up copy of the amended claims are attached hereto as Appendix A.

Claims 9 and 17 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. Applicant respectfully traverses this rejection.

Claims 9 and 17 have been amended to clarify that the window is made of the glass/polycarbonate composite material. It is respectfully submitted that claims 9 and 17, as amended, are allowable over the rejection under 35 U.S.C. § 112, second paragraph.

Claims 1, 2, and 10 were rejected under 35 U.S.C. § 103 as being unpatentable over Cobes et al. (U.S. Patent No. 5,480,208) in view of Lisec (U.S. Patent No. 5,173,148) and Farmer et al. (U.S. Patent No. 4,973,511). Applicant respectfully traverses this rejection.

U.S. Patent No. 5,480,208 to Cobes et al. discloses an S-portion for a frame-type vehicle body construction and an associated method. A vehicle in body white 10 for an automobile includes a driver side subassembly 12, an underbody subassembly 14 and a passenger side subassembly 16. The vehicle body construction may be made entirely of extruded aluminum components. Cobes et al. does not disclose includes a low transmittance glass window positioned within window portions of the vehicle structure.

U.S. Patent No. 5,173,148 to Lisec discloses installation for the production of insulating glass. In FIG. 5, two glass panes 3 are pressed to form a single insulating glass pane. Lisec does not disclose an energy efficient insulator attached to an inside portion of the vehicle structure to increase a thermal resistance of the vehicle.

U.S. Patent No. 4,973,511 to Farmer et al. discloses a composite solar/safety film and laminated window assembly made therefrom. The laminate can be used in vehicle applications such as windshields or side and rear windows. The laminate includes a substrate layer 16 serves as a carrier for solar coatings 18 and together the substrate 16 and solar coatings 18 comprise a solar control film 20. Farmer et al. does not disclose an energy efficient thermal management system providing exterior thermal management to an engine compartment and interior thermal management to an occupant compartment for the vehicle.

In contradistinction, claim 1, as amended, clarifies the invention claimed as a thermally energy efficient vehicle including a vehicle structure. The vehicle structure includes generally interconnected structural members that form a frame for the vehicle and generally planar interconnected panels that define a shape of the vehicle. A thermally efficient structural material is utilized for the structural members to reduce a thermal mass of the structural members. The thermally energy efficient vehicle also includes a low transmittance glass window positioned within window portions of the vehicle structure. The low transmittance glass window increases a thermal resistance of the vehicle. The thermally energy efficient vehicle includes an energy efficient insulator attached to an inside portion of the vehicle structure to increase a thermal resistance of the vehicle. The thermally efficient energy vehicle further includes an energy efficient thermal management system providing exterior thermal management to an engine compartment and interior thermal management to an occupant compartment for the vehicle. The energy efficient thermal management system consumes less thermal energy as a result of the increased thermal resistance of the vehicle.

The United States Court of Appeals for the Federal Circuit (CAFC) has stated in determining the propriety of a rejection under 35 U.S.C. § 103, it is well settled that the obviousness of an invention cannot be established by combining the teachings of the prior art

absent some teaching, suggestion or incentive supporting the combination. See In re Fine, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 227 U.S.P.Q. 657 (Fed. Cir. 1985); ACS Hospital Systems, Inc. v. Montefiore Hospital, 732 F.2d 1572, 221 U.S.P.Q. 929 (Fed. Cir. 1984). The law followed by our court of review and the Board of Patent Appeals and Interferences is that “[a] prima facie case of obviousness is established when the teachings from the prior art itself would appear to have suggested the claimed subject matter to a person of ordinary skill in the art.” In re Rinehart, 531 F.2d 1048, 1051, 189 U.S.P.Q. 143, 147 (C.C.P.A. 1976). See also In re Lalu, 747 F.2d 703, 705, 223 U.S.P.Q. 1257, 1258 (Fed. Cir. 1984) (“In determining whether a case of prima facie obviousness exists, it is necessary to ascertain whether the prior art teachings would appear to be sufficient to one of ordinary skill in the art to suggest making the claimed substitution or other modification.”)

None of the references cited, either alone or in combination with each other, teach or suggest the claimed invention of claim 1. Specifically, Cobes et al. ‘208 merely discloses an S-portion for a frame-type vehicle body construction and an associated method having a vehicle body construction that may be made entirely of extruded aluminum components. Cobes et al. ‘208 lacks a low transmittance glass window positioned within window portions of the vehicle structure. Lisec ‘148 merely discloses an installation for the production of insulating glass having two glass panes pressed to form a single insulating glass pane. Lisec ‘148 lacks an energy efficient insulator attached to an inside portion of the vehicle structure to increase a thermal resistance of the vehicle. Farmer et al. ‘511 merely discloses a composite solar/safety film and laminated window assembly made therefrom that can be used in vehicle applications such as windshields or side and rear windows and includes a substrate layer serving as a carrier for solar coatings. Farmer et al. ‘511 lacks an energy efficient thermal management system providing

exterior thermal management to an engine compartment and interior thermal management to an occupant compartment for the vehicle. The references, if combinable, fail to teach or suggest the combination of a thermally efficient energy vehicle including a thermally efficient structural material for structural members of a vehicle structure, a low transmittance glass window positioned within window portions of the vehicle structure, an energy efficient insulator attached to an inside portion of the vehicle structure, and an energy efficient thermal management system providing exterior thermal management to an engine compartment and interior thermal management to an occupant compartment for the vehicle as claimed by Applicant. The claimed invention is novel and unobvious because a thermally energy efficient vehicle is provided that demonstrates reduced thermal energy transmission into or out of the vehicle. Therefore, it is respectfully submitted that claim 1 and the claims dependent therefrom are allowable over the rejection under 35 U.S.C. § 103.

Claims 3 through 5 were rejected under 35 U.S.C. § 103 as being unpatentable over Cobes et al. '208 and Farmer et al. '511 and further in view of Li (U.S. Patent No. 5,865,940). Applicant respectfully traverses this rejection for the same reasons given above to claim 1.

Claims 6 through 9, 11, and 15 through 18 were rejected under 35 U.S.C. § 103 as being unpatentable over Cobes et al. '208 and Farmer et al. '511 and further in view Lisec '148. Applicant respectfully traverses this rejection.

Claim 11, as amended, clarifies the invention claimed as a thermally energy efficient vehicle including a vehicle structure. The vehicle structure includes generally interconnected structural members that form a frame for the vehicle and generally planar interconnected panels that define a shape of the vehicle, wherein a thermally efficient structural material is utilized for the structural members to reduce a thermal mass of the vehicle. The

thermally energy efficient vehicle also includes a low transmittance glass window positioned within window portions of the vehicle structure, wherein said low transmittance glass window includes two parallel sheets of glass separated by an air gap to increase a thermal resistance of the vehicle. The thermally energy efficient vehicle includes an energy efficient insulator attached to an inside portion of the vehicle structure to increase a thermal resistance of the vehicle. The thermally energy efficient vehicle further includes an energy efficient thermal management system providing exterior thermal management to an engine compartment and interior thermal management to an occupant compartment for the vehicle. The thermal energy consumption capacity of the energy efficient thermal management system is decreased since the energy efficient thermal management system consumes less thermal energy resulting from the increased thermal resistance and reduced thermal mass of the vehicle. Claim 18 has been amended similar to claim 11 and includes other features of the present invention.

None of the references cited, either alone or in combination with each other, teach or suggest the claimed invention of claims 11 and 18. Specifically, Cobes et al. '208 merely discloses an S-portion for a frame-type vehicle body construction and an associated method having a vehicle body construction that may be made entirely of extruded aluminum components. Cobes et al. '208 lacks a low transmittance glass window positioned within window portions of the vehicle structure including two parallel sheets of glass separated by an air gap to increase a thermal resistance of the vehicle. Liseec '148 merely discloses an installation for the production of insulating glass having two glass panes pressed to form a single insulating glass pane. Liseec '148 lacks an energy efficient insulator attached to an inside portion of the vehicle structure to increase a thermal resistance of the vehicle. Farmer et al. '511 merely discloses a composite solar/safety film and laminated window assembly made therefrom that can be used in vehicle applications such as windshields or side and rear windows and includes a substrate layer serving

as a carrier for solar coatings. Farmer et al. '511 lacks an energy efficient thermal management system providing exterior thermal management to an engine compartment and interior thermal management to an occupant compartment for the vehicle. The references, if combinable, fail to teach or suggest the combination of a thermally efficient energy vehicle including a thermally efficient structural material for structural members of a vehicle structure, a low transmittance glass window positioned within window portions of the vehicle structure including two parallel sheets of glass separated by an air gap to increase a thermal resistance of the vehicle, an energy efficient insulator attached to an inside portion of the vehicle structure, and an energy efficient thermal management system providing exterior thermal management to an engine compartment and interior thermal management to an occupant compartment for the vehicle as claimed by Applicant. The claimed invention is novel and unobvious because a thermally energy efficient vehicle is provided that demonstrates reduced thermal energy transmission into or out of the vehicle. Therefore, it is respectfully submitted that claims 11 and 18 and the claims dependent therefrom are allowable over the rejection under 35 U.S.C. § 103.

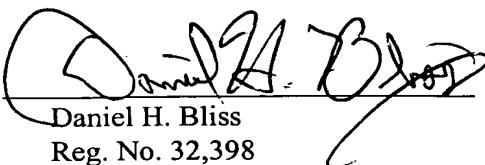
Claims 12 through 14, 19, and 20 were rejected under 35 U.S.C. § 103 as being unpatentable over Cobes et al. '208, Farmer et al. '511, and Liseec '148 and further in view of Li '940. Applicant respectfully traverses this rejection for the same reasons given above to claims 11 and 18.

Obviousness under § 103 is a legal conclusion based on factual evidence (In re Fine, 837 F.2d 1071, 1073, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988), and the subjective opinion of the Examiner as to what is or is not obvious, without evidence in support thereof, does not suffice. Since the Examiner has not provided a sufficient factual basis, which is supportive of his/her position (see In re Warner, 379 F.2d 1011, 1017, 154 U.S.P.Q. 173, 178 (C.C.P.A. 1967), cert. denied, 389 U.S. 1057 (1968)), the rejections of claims 1 through 20 is improper. Therefore,

it is respectfully submitted that claims 1 through 20 are allowable over the rejections under 35 U.S.C. § 103.

Based on the above, it is respectfully submitted that the claims are in a condition for allowance, which allowance is solicited.

Respectfully submitted,

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Date: February 6, 2002

Attorney Docket No.: 0667.00246
Disclosure No.: V200-0035

APPENDIX AVERSION OF THE CLAIMS WITH MARKINGS TO SHOW THE CHANGES

Please amend claims 1, 4, 5, 9, 11, 13, 17, and 18 as follows:

1. (AMENDED) A thermally energy efficient vehicle comprising:
a vehicle structure, wherein said vehicle structure includes generally interconnected structural members that form a frame for the vehicle and generally planar interconnected panels that define a shape of the vehicle, wherein a thermally efficient structural material is utilized for said structural members to reduce a thermal mass of said structural members;
a low transmittance glass window positioned within window portions of said [the] vehicle structure, wherein said low transmittance glass window increases a thermal resistance of the vehicle; [and]
an energy efficient insulator attached to an inside portion of said vehicle structure to increase a thermal resistance of the vehicle; and
an energy efficient thermal management system providing exterior thermal management to an engine compartment and interior thermal management to an occupant compartment for the vehicle, wherein said energy efficient thermal management system consumes less thermal energy as a result of the increased thermal resistance of the vehicle.

4. (AMENDED) A thermally energy efficient vehicle as set forth in claim [3]
1 wherein said energy efficient insulator provides a thermal barrier and an acoustic barrier.

5. (AMENDED) A thermally energy efficient vehicle as set forth in claim [3]

1 wherein said energy efficient insulator is a gas-filled panel.

9. (AMENDED) A thermally energy efficient vehicle as set forth in claim [6]

1 wherein [the two parallel sheets of glass are] said low transmittance glass window is made from
a glass/polycarbonate composite material.

11. (AMENDED) A thermally energy efficient vehicle comprising:

a vehicle structure, wherein said vehicle structure includes generally interconnected structural members that form a frame for the vehicle and generally planar interconnected panels that define a shape of the vehicle, wherein a thermally efficient structural material is utilized for [a structural member,] said structural members to reduce a thermal mass of the vehicle;

a low transmittance glass window positioned within window portions of said [the] vehicle structure, wherein said low transmittance glass window includes two parallel sheets of glass separated by an air gap, to increase a thermal resistance of the vehicle; [and]

an energy efficient insulator attached to an inside portion of said vehicle structure
to increase a thermal resistance of the vehicle; and

an energy efficient thermal management system providing exterior thermal management to an engine compartment and interior thermal management to an occupant compartment for the vehicle, wherein a thermal energy consumption capacity of said energy efficient thermal management system is decreased since said energy efficient thermal

management system consumes less thermal energy resulting from the increased thermal resistance and reduced thermal mass of the vehicle.

13. (AMENDED) A thermally energy efficient vehicle as set forth in claim [12] 11 wherein said energy efficient insulator provides a thermal barrier and an acoustic barrier.

17. (AMENDED) A thermally energy efficient vehicle as set forth in claim 11 wherein [the two parallel sheets of glass are] said low transmittance glass window is made from a glass/polycarbonate composite material.

18. (AMENDED) A thermally energy efficient vehicle comprising:
a vehicle structure, wherein said vehicle structure includes generally interconnected structural members that form a frame for the vehicle and generally planar interconnected panels that define a shape of the vehicle, wherein a thermally efficient structural material is utilized for [a structural member,] said structural members to reduce a thermal mass of the vehicle;

an energy efficient insulator attached to [a] an inside portion of said vehicle structure to increase a thermal resistance of the vehicle;

a low transmittance glass window positioned within window portions of said [the] vehicle structure, wherein said low transmittance glass window includes two parallel sheets of glass separated by an air gap, to increase the thermal resistance of the vehicle; and

an energy efficient thermal management system providing exterior thermal management to an engine compartment and interior thermal management to an occupant compartment for the vehicle, wherein a thermal energy consumption capacity of said energy

efficient thermal management system is decreased since said energy efficient thermal management system consumes less thermal energy resulting from the increased thermal resistance and reduced thermal mass of the vehicle.